

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

Claim 1 (original): A method of identifying a defective location in a conductive structure formed in a semiconductor wafer, the method comprising:

applying heat to the conductive structure at an intensity that changes over time;
measuring electromagnetic radiation from an area of the conductive structure, as a function of changing intensity of applied heat, the area of a single measurement being sufficiently large to cover a plurality of vias;

comparing the single measurement with a plurality of measurements obtained by performing said measuring in other areas while applying heat; and

providing an indication about a suspected defect in said area, in response to the comparison.

Claim 2 (original): The method of Claim 1 further comprising:

receiving said wafer with said conductive structure formed therein to comprise a first conductive layer patterned into at least one island, said island being connected to at least one via.

Claim 3 (original): The method of Claim 2, wherein:

the conductive structure further comprises a second conductive layer that is unpatterned and forms a sheet of conductive material; and

each via is located between the first conductive layer and the second conductive layer.

Claim 4 (original): The method of Claim 2, wherein:

the conductive structure further comprises a second conductive layer that is patterned to form a line of conductive material; and

each via is located between the first conductive layer and the second conductive layer.

Claim 5 (original): The method of Claim 1, wherein the conductive structure comprises a via chain.

Claim 6 (original): The method of Claim 5, wherein:

each via is connected to at most one trace in a first conductive layer and to another trace in a second conductive layer;

said plurality of vias are located periodically in space along a direction; and

said area has a dimension that is several times larger than a pitch between two vias in said plurality of vias.

Claim 7 (original): The method of Claim 1 further comprising:

receiving said wafer with said conductive structure formed therein to comprise a first conductive layer patterned into a shape selected from a group consisting of a serpentine and a comb; and

wherein said vias are located between the first conductive layer and a second conductive layer and at least a majority of said vias form electrical connections between said first conductive layer and said second conductive layer.

Claim 8 (original): The method of Claim 7, wherein:

the second conductive layer is also patterned into the shape selected from said group.

Claim 9 (original): The method of Claim 7, wherein:

the second conductive layer is unpatterned and forms a continuous sheet of conductive material.

Claim 10 (original): The method of Claim 1, wherein:

said determining includes computing a standard deviation of said plurality of measurements and computing a baseline using said standard deviation.

Claim 11 (original): The method of Claim 10, wherein:

said baseline is an average of said plurality of measurements.

Claim 12 (original): The method of Claim 1, wherein:

said plurality of measurements are performed at least along a direction defined by a plurality of vias located sequentially one after another in said conductive structure.

Claim 13 (original): The method of Claim 1, wherein:

reflection of a laser beam is measured during said measuring; and
the laser beam illuminates said area of the conductive structure.

Claim 14 (original): The method of Claim 1, wherein:

a first beam is incident on a first trace in the conductive structure during said measuring; and

a second beam is coincident with said first beam during said measuring, the second beam having a wavelength greater than a pitch between two vias in said conductive structure.

Claim 15 (original): The method of Claim 1, wherein:

said measuring is performed while moving a stage carrying the semiconductor wafer containing the conductive structure;

said measuring is performed continuously, thereby to obtain an analog signal; and
said analog signal is used during said determining.

Claim 16 (original): The method of Claim 10, wherein:

the baseline undulates across successive areas; and

a change in said baseline at any area relative to a previous area is several times smaller than a corresponding change in said area identified as having said defect.

Claim 17 (original): The method of Claim 1 further comprising:

illuminating said area with a beam of electromagnetic radiation of intensity varying over time such that each via in said area has a temperature in direct proportion to said intensity at any instant in time.

Claims 18-32 (canceled).